

**ALPHABETICAL INDEX
TO THE COMMERCE CONTROL LIST**

This index is not an exhaustive list of controlled items.

Supplement No. 4 to Part 774 – Commerce Control List Order of Review
identifies the steps to follow when reviewing the Commerce Control List.

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| Acoustic hydrophone arrays, towed | 6A001.a.2.b |
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| Acoustic systems, equipment, radar, parts ... for military not on USML | 6A611, 3A611 |
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| Acoustic underwater communications systems | 5A001.b.1 |
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|--|------------------|
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| Active acoustic systems | 6A001.a.1 |
| Actively cooled mirrors | 6A005.e.1 |
| Acoustic systems, equipment, radar, parts, components, accessories for military ... | 6A611, 3A611 |
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| ADCs (analog-to-digital converters)..... | 3A001.a.5 |
| ADCs (analog-to-digital converters)..... | 4A003.e |
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| Aero gas turbine engines..... | 9A001, 9A619.a |
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| Aircraft inertial navigation systems & equipment | 7A003 |
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| Description | ECCN Citation |
|--|--------------------------------|
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| Aircraft wing folding system technology | 0E521 No 2 |
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| Aluminum nitride (AlN) "substrates", ingots, boules, or other preforms of those materials | 3C005 |
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| Aluminum powder (spherical) production equipment..... | 1B102 |
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| Amalgam pumps, lithium and/or mercury | 1B233.b.2 |
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| Ammonium hydrogen fluoride | 1C350.d.1 |
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| Description | ECCN Citation |
|--|----------------|
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| Description | ECCN Citation |
|---|----------------|
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| Array processors/assemblies | 4A003 |
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| Description | ECCN Citation |
|---|---------------|
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| Bearings, (e.g., ball, roller, wheel) for ground vehicles | 0A606.y.5 |
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| Description | ECCN Citation |
|--|--|
| Beryllium metal particulate..... | 1C111.a.2.a.4 |
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| Description | ECCN Citation |
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| Cameras, radiation hardened TV | 6A203.d |
| Cameras, scanning & scanning camera systems..... | 6A003.b.2 |
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| Cameras, video using solid state sensors | 6A003.b.1 |
| Cameras and components | 6A003 |
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| Cameras and imaging devices (high-speed) and “components” therefore, “software” “specially designed” to enhance or release the performance characteristics of devices to meet or exceed the performance characteristics described in ECCN 6A203 | 6D201 |

| Description | ECCN Citation |
|--|----------------------|
| Cameras not controlled by 6A003 or 6A203 | 6A993 |
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| Carbon fiber & filamentary materials | 1C210.a |
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| Carbon-carbon materials, resaturated pyrolyzed | 1C102 |
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| Centrifugal multiplane balancing machines for flexible rotors | 2B229.a |
| Centrifugal separators | 2B352.c |
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| Centrifuge rotor assembly equipment..... | 2B228.a |
| Centrifuges capable of imparting accelerations above 100 g | 2B122 |
| Ceramic based materials | 1C007 |
| Ceramic base materials, of single or complex borides of titanium | 1C007.a |

| Description | ECCN Citation |
|--|------------------|
| Ceramic composite materials, useable for radomes or nose tips | 1C107.b |
| Ceramic cores for blades & vanes | 9B001.b, 9B619.a |
| Ceramic core manufacturing equipment | 9B991.d, 9B619.a |
| Ceramic fibers | 1C010.c Note 4 |
| Ceramic non-composite materials | 1C007.b |
| Ceramic shells for blades & vanes | 9B001.b, 9B619.a |
| Ceramic shell wax pattern preparation equipment | 9B991.e, 9B619.a |
| Ceramic-ceramic composite materials | 1C007.f |
| Ceramic-ceramic-matrix composite materials | 1C007.d |
| Ceramic-matrix composite materials | 1C007.c |
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| Chambers, aerosol challenge testing (capacity of 1 m ³ or more) | 2B352.h |
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| Changers, frequency (converters or inverters) | 3A225 |
| Chapare virus | 1C351.a.6 |
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| Chemical vapor deposition (CVD) equipment, production | 2B005.a |
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| Description | ECCN Citation |
|--|-----------------------|
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| Clamps (V-Band, cushion, broomstick, hinged, and loop) for gas turbine engines | 9A619.y.5 |
| Classical swine fever virus (Hog cholera virus) | 1C351.a.9 |
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| Clicker dies | 1B101.d |
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| Clostridium baratii, botulinum neurotoxin producing strains | 1C351.c.9 |
| Clostridium botulinum | 1C351.c.10 |
| Clostridium butyricum, botulinum neurotoxin producing strains..... | 1C351.c.11 |
| Clostridium perfringens, epsilon toxin producing types..... | 1C351.c.12 |
| Clostridium perfringens alpha, beta 1, beta 2, epsilon and iota toxins | 1C351.d.5 |
| Clothing & materials, bullet-resistant | 1A005 |
| CNTD (Controlled nucleation thermal decomposition) equipment..... | 2B005.a.1.b |
| Coating application & processing technology, optic fibers | 5E991.a.1 |
| Coating application technology, for non-electronic substrates..... | 2E003.f |
| Coating application & processing technology, optic fibers | 5E001.b.3 |
| Coating equipment for preprints/preform production | 1B101.d |
| Coating & processing equipment, for non-electronic substrates | 2B005 |
| Coatings for reduced electromagnetic visibility or signature suppression | 1C101, 0C617.a |
| Coccidioides immitis | 1C351.e.1 |
| Coccidioides posadasii..... | 1C351.e.2 |
| Cochliobolus miyabeanus (<i>Helminthosporium oryzae</i>)..... | 1C354.b.2 |
| Cold-cathode tubes..... | 3A228.a |
| Colletotrichum coffeatum var. virulans (<i>Colletotrichum kahawae</i>) | 1C354.b.1 |
| Colletotrichum kahawae (<i>Colletotrichum coffeatum</i> var. <i>virulans</i>) | 1C354.b.1 |
| Color center lasers..... | 6A005.c.1, c.2 or c.3 |
| Column, absorption or distillation | 2B350.e |
| Column, liquid-liquid exchange, for lithium amalgams | 1B233.b.1 |
| Combined cycle engines/components..... | 9A011, 9A619 |
| Combustion regulation devices, missile engines | 9A118 |
| Common channel signaling equipment/systems | 5A991.c.8 |
| Common channel signaling, technology for the development of equipment employing | 5D001.c.5 |
| Communication channel controllers | 5A991.b.4.b |

| Description | ECCN Citation |
|--|---|
| Communication equipment, airborne..... | 7A994 |
| Communication (mobile) equipment, assemblies and components..... | 5A991.g |
| Communications interception devices, parts and accessories..... | 5A980, 5D980 or 5E980 |
| Communications cable systems, secure | 5A002.a.7 |
| Communications Systems (underwater) | 5A001.b.1 |
| Compasses..... | 8A609.y.5, 8A620.y.5, 8A992.j, 9A610.y.13 |
| Compasses (gyro-astro) & other position or orientation deriving devices | 7A004 |
| Compasses (gyro-astro) & devices, other than those of 7A004..... | 7A104 |
| Complex programmable logic devices (CPLD)..... | 3A001.7.a, 3A991.d |
| Components made from Fluorinated compounds | 1A001 |
| Components/structures for spacecraft..... | 9A010 |
| Composite conductors, superconductive | 1C005 |
| Composite or laminate development software..... | 1D002 |
| Composite structures, as tubes | 1A202 |
| Composite structures or laminates | 1A002 |
| Composite (structural) production equipment, n.e.s..... | 1B999.e |
| Composite (structural) production equipment controlled by 1B999, software for | 1D999 |
| Composite materials, ceramic-ceramic | 1C007.f |
| Composites production equipment | 1B001 |
| Composite structures for propulsion systems or space vehicles..... | 9A110, 9A619.x |
| Composite structures for unmanned aerial vehicles | 9A610.t |
| Composites (structural) production equipment..... | 1B101 |
| Compound rotary tables for machine tools | 2B008.c |
| Compound semiconductor integrated circuits | 3A001.a.11 |
| Compound semiconductor photocathodes | 6A002.a.2.c.3 |
| Compressors..... | 9A619.x |
| Compressors, bellows-sealed scroll-type..... | 2B233 |
| Compressors, turboexpander..... | 1B232 |
| Compressors, turbo/centrifugal/axial flow..... | 9A619.x |
| Computer, electronic assemblies & equipment & components ... | 4A001, 4A003, 4A004 or 4A994 |
| Computer, electronic components | 4A101 |
| Computer, electronic components | 4A102 |
| Computers, parts, components, accessories... for military applications, not on USML | 3A611 |
| Computer aided design (CAD) equipment for semiconductor devices or integrated circuits | 3B991.b.2.c |
| Computer-aided-design (CAD) software for IC's & semiconductors..... | 3D003 |
| Computer interconnect equipment..... | 4A003.g |
| Computer/assemblies/components, neural..... | 4A004.b |
| Computer/assemblies/components, optical..... | 4A004.c |
| Computers, electronic assemblies, and related equipment and components not controlled by 4A001 or 4A003 | 4A994 |
| Computers, analog & analog ruggedized | 4A101 |

| Description | ECCN Citation |
|--|-----------------------|
| Computers for fingerprint equipment | 4A980 |
| Computers, digital ruggedized | 4A101 |
| Computers/assemblies/components, systolic array..... | 4A004.a |
| Computers, analog | 4A001 |
| Computers, digital | 4A003 |
| Computers, digital | 4A004 |
| Computers, digital..... | 4A001 |
| Computers, hybrid..... | 4A102 |
| Computers, parts, components ... for military application not on USML..... | 4A611/3A611 |
| Computers and electronic assemblies (hybrid), and specially designed components therefor..... | 4A994.k |
| Computers, with extended operating temperature range | 4A001.a.1 |
| Computers, radiation hardened | 4A001.a.2 |
| Concealment and deception equipment (military), i.e. special paints, decoys, smoke or obscuration equipment and simulators..... | 0A617 |
| Concealed object detection equipment | 2A984, 2D984 or 2E984 |
| Condensers for use in nuclear reactors | 2A290.a |
| Condensers or heat exchangers | 2B350.d |
| Conductive polymers | 1C001.c |
| Conductors, superconductive composite | 1C005 |
| Congo-Crimean haemorrhagic fever virus (a.k.a. Crimean-Congo haemorrhagic fever virus) | 1C351.a.10 |
| Connector backshells, electric | 3A611.y.9 |
| Conotoxin | 1C351.d.6 |
| Construction equipment “specially designed” for military use | 0A617.y.1 |
| Contactors | 3A611.y.27 |
| Contagious bovine pleuropneumonia (<i>Mycoplasma mycoides</i> subspecies <i>mycoides</i> SC (small colony)) | 1C351.c.16 |
| Containers, for packing defense articles or “600 series” items | 0A617.y.3 |
| Containers, chemical | 2B350.c |
| Containment devices (not enumerated under ECCN 1B608 or in USML Category IV or V) for the testing of high explosives or explosive devices | 1B234 |
| Containment facilities | 2B352.a |
| Continuous mixers | 1B118 |
| Control units for metallurgical melting & casting furnaces..... | 2B227 |
| Control systems, on-line development of gas turbine engines | 9B002, 9B619.a |
| Controllable-pitch propellers | 8A002.o.2.a |
| Controlled atmosphere melting & casting furnaces..... | 2B227 |
| Controlled environment (vacuum or inert gas) induction furnaces | 2B226 |
| Controlled nucleation thermal decomposition (CNTD) equipment..... | 2B005.a.1.b |
| Controllers, machine tool (CNC) | 1B001.a |
| Controllers for high explosive handling robots | 2B207 |

| Description | ECCN Citation |
|--|-------------------|
| Controllers, robot | 2B007 |
| Converter integrated circuits | 3A001.a.5 |
| Converters, frequency | 3A225 |
| Converters, frequency extender | 3A001.b.7 |
| Cooling fluids - electronic | 1C006.d |
| Cooling fluids, fluorocarbon electronic | 1C006.d |
| Cooling systems, freon and chilled water | 1B999.d |
| Copper or phosphor bronze mesh packings | 1A226 |
| Copper metal vapor lasers..... | 6A005.b |
| Coprocessor microcircuits | 3A001.a.3 Note |
| Correlation-velocity sonar log equipment | 6A001.b |
| Counter Improvised Explosive Device equipment | 5A001.h |
| Coxiella burnetii..... | 1C351.c.13 |
| Crime science laboratories, parts and accessories, nonmilitary mobile..... | 9A980 |
| Crimean-Congo haemorrhagic fever virus (a.k.a. Congo-Crimean haemorrhagic fever virus) | 1C351.a.10 |
| Cross-flow filtration equipment | 2B352.d |
| Crossed-field amplifier tubes | 3A001.b.1.b |
| Crucibles, liquid actinide resistant..... | 2A225 |
| Crucibles, tantalum | 2A225.b or c |
| Cryocoolers for optical sensors, space qualified..... | 6A002.d.1 |
| Cryocoolers for optical sensors, non-space qualified | 6A002.d.2 |
| Cryogenic and superconductive equipment, parts, components, accessories | 9A620 |
| Cryogenic and superconductive test equipment | 9B620 |
| Cryogenic and superconductive software | 9D620 |
| Cryogenic and superconductive technology | 9E620 |
| Cryptanalytic equipment or devices, digital | 5A002.a.2 |
| Cryptoanalytic equipment and components, n.e.s. | 5A992 |
| “Cryptographic activation” equipment | 5A002.j |
| Cryptographic enabling systems, equipment, integrated circuits, etc | 5A002.b |
| Cryptographic enabling software | 5D002.d |
| Cryptographic enabling technology | 5E002.b |
| Cryptographic equipment and components, n.e.s. | 5A992 |
| Cryptography equipment or devices, digital | 5A002.a.1 |
| Cryptography equipment or devices, analog | 5A002.a.3 |
| Cryptologic equipment, software for the development, production or use of | 5D992 |
| Cryptologic equipment and components, n.e.s. | 5A992 |
| Cryptologic equipment, technology for the development, production or use of | 5E992 |
| Crystal pullers and furnaces | 3B991.b.1.c |
| CTPB (Carboxy-terminated polybutadiene) | 1C111.b.1 |
| Custom integrated circuits | 3A001.a.2 or a.10 |
| Cutting tool inserts, single diamond point | 2B998.b |

| Description | ECCN Citation |
|---|--------------------------------|
| Cutting machines, gears | 2B003 |
| Cutting equipment for prepregs/preform production | 1B101.d |
| CVD (Chemical vapor deposition) equipment | 1B001.d.2 |
| CVD (Chemical vapor deposition) equipment | 2B005.a |
| CVD (Chemical vapor deposition) equipment | 1B101.c.2 |
| CVD (Chemical vapor deposition) furnaces, other than those controlled by 2B005.a, designed or modified for the densification of carbon-carbon composites | 2B105 |
| CW (Chemical warfare) precursors | 1C350 |
| Cyanogen chloride (506-77-4)..... | 1C355.b.1.b, 1E355.b.2 |
| Cylinder wall lubrication technology, diesel engines | 9E003.e.3 |
| DACs (Digital-to-analog converters)..... | 3A001.a.5 |
| DBRN (Data Based Referenced Navigation) system technology..... | 7E004.a.7 |
| Damping, flotation or lubricating fluids | 1C006.c |
| Data acquisition systems for gas turbine engine development | 9B002, 9B619.a |
| Data (message) switching equipment, systems, components and assemblies | 5A991.c.1 |
| Data acquisition equipment for wind tunnels, automatic..... | 9B005 |
| Data Based Referenced Navigation (DBRN) systems for underwater navigation, technology | 7E004.a.7 |
| Datagram packet routing or switching equipment | 5A991.c.3 |
| Decanters, centrifugal | 2B352.c |
| Decontamination equipment | 1A004 or 1A995 |
| Deep-hole drilling machines | 2B001.f |
| Defect, error or contaminant detection equipment for wafers or substrates | 3B992.b.1 |
| Deformable mirrors..... | 6A004.a.1 |
| Degassing equipment | 2B350 |
| DEGDN (diethylene glycol dinitrate)..... | 1C111.c.5 |
| Demolition blocks..... | 0A604.a |
| Dengue virus | 1C351.a.11 |
| Depleted Uranium..... | 1A290 |
| Depth sounders..... | 6A001.a.1 |
| Design integration of guidance sets, software | 7D103 |
| Detection and protection equipment and components | 1A004, 1A995, 2B351 or 2B352 |
| Detection equipment, seismic | 6A999.a |
| Detection equipment, radiation | 1A004, 1A995 or 1A999.a |
| Detection equipment, radiographic | 1A999.b |
| Detection systems for explosives and detonators | 1A004.d, 2A983, 2D983 or 2E983 |
| Detection or location systems or transmitting and receiving arrays (acoustic) | 6A001.a.1.b |
| Detectors, optical | 6A002.a |
| Detectors, radiation hardened | 6A102 |
| Detectors, space-qualified solid state optical..... | 6A002.a.1 |
| Detonation cord..... | 1A008 or 1C992.c |
| Detonator detection | 2A983, 2D983 or 2E983 |

| Description | ECCN Citation |
|--|--------------------|
| Detonators and multipoint initiation systems | 3A229 |
| Detonator firing sets, for multiple detonators of 3A232..... | 1A007 or 3A229 |
| Detonators, electric or non-electric..... | 1C608.d or 1C992.e |
| Detonators, exploding bridge wire (EBW) | 1A007 |
| Detonators, exploding bridge (EB) | 1A007 |
| Detonators, exploding foil initiators (EB) | 1A007 |
| Detonators for military explosives..... | 0A604 |
| Detonators, slapper (electric). | 1A007 |
| Deuterium fluoride-carbon dioxide (DF-CO2) lasers..... | 6A005.d.5 |
| Deuterium fluoride (DF) lasers | 6A005.d.5 |
| Di-isopropylamine | 1C350.d.4 |
| Diacetoxyscirpenol toxin | 1C351.d.7 |
| Dials, indicator | 3A611.y.26 |
| Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl (Me, Et, n-Pr, or i-Pr)-phosphoramides .. | 1C355.a.2.c |
| Diamond cutting tool inserts, single point | 2B998.b |
| Diamond film substrate development/production technology | 3E003.d |
| Diaphragms, made from fluoroelastomers..... | 1A001.c |
| Diaphragm valves | 2B350.g |
| Dibromotetrafluoroethane based damping or flotation fluids..... | 1C006.c.1 |
| Die bonder, stored program controlled | 3B991.b.3.a |
| Diesel engines for submarines | 8A620.d |
| Diesel engines, nonmagnetic | 8A609.b |
| Diesel engines (air-cooled) and engine blocks for armored vehicles..... | 0A606.c |
| Dies, bellows-forming..... | 2B228.c |
| Diesel engines, n.e.s..... | 9A990 |
| Diesel cycle engine, air independent | 8A002.j |
| Diethyl ethylphosphonate | 1C350.b.3 |
| Diethyl methylphosphonite | 1C350.b.4 |
| Diethyl phosphite | 1C350.c.1 |
| Diethyl-N, N-dimethylphosphoramidate | 1C350.b.5 |
| Diethylamine | 1C350.d.25 |
| Diethylaminoethanol | 1C350.d.3 |
| Diethylene glycol dinitrate (DEGDN) | 1C111.c.5 |
| Diffusion bonding technology, metal working | 2E003.b.1.b |
| Diffusion bonding technology/data, super alloys or Ti alloys | 2E003.b.2.b |
| Diffusion bonding tools, dies, molds or fixtures..... | 1B003 |
| Digital array processors | 3A001.a.3 Note |
| Digital computers..... | 4A003 |
| Digital computers..... | 4A994.b |
| Digital computers, electronic assemblies & related equipment..... | 4A003 |
| Digital computers, electronic assemblies & related equipment | 4A001 |
| Digital computers, logic processors | 4A003 |

| Description | ECCN Citation |
|---|----------------|
| Digital computers, ruggedized | 4A101 |
| Digital computers, signal processing | 4A003 |
| Digital computers, vector processors | 4A003 |
| Digital computer electronic assemblies, parallel processing | 4A003.c |
| Digital computer systems | 4A004 |
| Digital computer systems | 4A003.c |
| Digital computer systems | 4A003.b |
| Digital computer systems..... | 4A001 |
| Digital coprocessors..... | 3A001.a.3 Note |
| Digital differential analyzer, ruggedized | 4A101 |
| Digital electronic control software for propulsion systems, aerospace test facilities or air breathing aero-engine test facilities..... | 9D003, 9D619 |
| Digital exchanges, telecommunication | 5A991.c |
| Digital instrumentation data recorders..... | 3A002.a.6 |
| Digital signal processors | 4A003 |
| Digital time delay generators | 3A999.e1 |
| Digital-to-analog converter integrated circuits (DACs) | 3A001.a.5 |
| Digitally controlled radio receivers | 5A001.b.5 |
| Digitizers, waveform..... | 3A002a.5 |
| Dimensional inspection or measuring systems or equipment not controlled by 2B006..... | 2B996 |
| Dimensional inspection machines..... | 2B206 |
| Dimensional inspection equipment/systems | 2B006.a |
| Dimensional inspection equipment/systems | 2B006.c |
| Dimensional measuring equipment, instruments/systems | 2B006.b |
| Dimethyl ethylphosphonate | 1C350.b.10 |
| Dimethyl methylphosphonate | 1C350.b.11 |
| Dimethyl phosphite | 1C350.c.2 |
| Dimethylamine | 1C350.d.5 |
| Dimethylamine hydrochloride | 1C350.d.6 |
| Dinitrogen tetroxide () | 1C111.a.3.b |
| Dinitrogen trioxide | 1C111.a.3.a |
| Dinitrogen pentoxide | 1C111.a.3.c |
| 2,2' Dinitropropanol | 1C018 |
| Diodes, laser..... | 6A005.d.1 |
| Diortho tolyl-urethane..... | 1C018.g |
| Diphenyl urethane | 1C018.f |
| Direct view imaging equipment..... | 6A002.c |
| Direct-acting hydraulic pressing technology for metal working | 2E003.b.2.c |
| Direct Digital Synthesizer (DDS) integrated circuits | 3A001.a.13 |
| Direction finding equipment & components, surveillance | 5A001.e |

| Description | ECCN Citation |
|--|--|
| Direction finding equipment, parts & components, navigation, not controlled under 7A003 or 7A103 | 7A994 |
| Direction finding systems, equipment & components, navigation (inertial) | 7A003 |
| Direction finding systems, equipment & components, navigation, not controlled under 7A003 | 7A103 |
| Directional solidification casting control software | 9D004.c |
| Directional solidification casting equipment | 9B001.a, 9B619.a |
| Discharge type arms..... | 0A985 |
| Discrete microwave transistors | 3A611.d |
| Discrete microwave transistor technology | 3E611.b.4 |
| Disk drive (magnetic hard) development or production technology | 4E993.c |
| Display, 3D (software for) | 7D004.g |
| Disruptors..... | 1A006.b |
| Distillation columns..... | 2B350.e |
| Distillation columns, hydrogen-cryogenic | 1B228 |
| Distillation towers, packings | 1A226 |
| Dive computers | 8A992.j |
| Diver deterrent acoustic systems | 8A002.r |
| DNAN (2,4-dinitroanisole) (CAS 119-27-7)..... | Annex to Cat 1 "List of Explosives" 44 |
| Dobrava-Belgrade virus | 1C351.a.12 |
| Doppler laser interferometers (DLIs)..... | 6A225 |
| Double seal valves | 2B350.g |
| Drilling equipment | 2B999.h |
| Drilling machines, deep-hole | 2B001.f |
| Drone (military) production facilities | 9B610.c |
| Dry etching equipment, anisotropic plasma..... | 3B001.c |
| Dye lasers..... | 6A005.c |
| Dye lasers..... | 6A205 |
| Dynamic adaptive routing equipment | 5A991.c.9 |
| Dynamic wavefront (phase) measuring equipment | 6A005.f.1 |
| Dynamic adaptive routing software | 5D991.a |
| E-beam welders..... | 2B999.e |
| Earth moving equipment, large | 2B999.h.2 |
| Eastern equine encephalitis virus..... | 1C351.a.13 |
| EB-PVD (Electron beam physical vapor deposition) equipment | 2B005.c |
| Ebolavirus (includes all members of Ebolavirus genus)..... | 1C351.a.14 |
| Eddy current test equipment for nuclear reactors | 2A291.d |
| EDMs, non-wire feed types | 2B001.d |
| EDMs, wire feed type | 2B991d.1 |
| Ejection seat mounted survival aids for military aircraft..... | 9A610.y.6 |
| Electric cattle prods..... | 0A985 |
| Electric detonators, explosive | 3A232a |

| Description | ECCN Citation |
|---|---------------|
| Electric fans | 3A611.y.2 |
| Electric propulsion engines..... | 8A002o.2.b |
| Electrical contacts | 3A611.y.19 |
| Electrical discharge machines, non wire feed (CNC)..... | 2B001.d |
| Electrical discharge machines (EDM) of the wire feed type | 2B991.d.2 |
| Electrical guide pins..... | 3A611.y.20 |
| Electrically driven explosive detonators | 3A232.a |
| Electro-optic materials | 6C004 |
| Electro-optical device manufacturing equipment and systems..... | 3B991.b Note |
| Electro-optical integrated circuits | 3A001.a.6 |
| Electrolysis cells, amalgam lithium isotope separation | 1B233.b.3 |
| Electrolytic cells for fluorine production | 1B225 |
| Electrolytic cells for fluorine production not controlled by 1B225 | 1B999.a |
| Electromagnetic interference (EMI) protection technology | 7E102 |
| Electromagnetic isotope separators..... | 1B226 |
| Electromagnetic pulse (EMP) protection, detectors | 6A102 |
| Electromagnetic pulse (EMP) protection technology, avionics..... | 7E102 |
| Electromagnetic radiation sensors, optical fiber | 6A002.d.3.a |
| Electromagnetic signature reduction devices..... | 1A101 |
| Electromagnetic signature reduction materials | 1C101 |
| Electromagnetic underwater communications systems | 5A001.b.1.b |
| Electromagnets, superconductive | 3A201.b |
| Electromagnets, superconductive | 3A001.e.3 |
| Electron beam cutting machines (CNC) | 2B001.e.1.b |
| Electron beam equipment for mask making/semiconductor devices..... | 3B001.f.2 |
| Electron beam equipment for projection image transfer..... | 3B991.b.2.g |
| Electron beam melting furnaces..... | 2B227.b |
| Electron beam physical vapor deposition (EB-PVD) equipment | 2B005.c |
| Electron beam sensitive resist materials | 3C002.b |
| Electron beam systems, for probing semiconductor devices | 3B992.b.5 |
| Electron beam systems..... | 3B991.b.1.j |
| Electron beam test systems | 3B992.b.5 |
| Electron bombardment mass spectrometers..... | 3A233.d |
| Electron cyclotron resonance (ECR) plasma dry etching equipment | 3B001.c.1.b |
| Electron tube manufacturing equipment and components..... | 3B991.a |
| Electron tube inspection or testing equipment and components..... | 3B992.a |
| Electronic assemblies..... | 4A003 |
| Electronic assemblies and related equipment not controlled by 4A001 or 4A003..... | 4A994 |
| Electronic assemblies specially designed to provide feedback capability in systems controlled by 2B006.b.1.c | 2B006.b.1.d |
| Electronic cameras | 6A003.a.5 |
| Electric chairs..... | 0A981 |

| Description | ECCN Citation |
|---|--------------------------------------|
| Electronic components | 3A001 |
| Electronic components | 3A201 |
| Electronic components | 3A101 |
| Electronic components (military) | 3A611 |
| Electronic components and materials inspection or testing equipment, components and accessories | 3B992 |
| Electronic components and materials manufacturing equipment | 3B991 |
| Electronic components and materials manufacturing equipment, not controlled by 3B001 | 3C001 |
| Electronic computers | 4A994.a |
| Electronic computers & related equipment | 4A001, 4A003, 4A004 or 4A994 |
| Electronic computers & related equipment | 4A101 |
| Electronic computers & related equipment | 4A102 |
| Electronic cooling fluids | 1C006.d |
| Electronic framing cameras | 6A203.b.2 |
| Electron sensing devices | 6A002.a.2.a.2.b |
| Electronic streak cameras & streak tubes | 6A003.a.3 |
| Electronic streak cameras & streak tubes | 6A203.b.1 |
| Electrical connectors | 3A611.y.1 |
| Electronically steerable antennae, phased array | 5A001.d |
| Electroplating equipment | 2B999.i |
| EMP/EMI protection technology, avionic systems | 7E102 |
| Encoders, rotary input shaft type | 3A001.f |
| Encryption equipment, assemblies & components | 5A002 |
| Encryption hardware components | Cat 5 pt 2 Note 3 (b) |
| Encryption software | 5D002 |
| End effectors, robot | 2B207 |
| End effectors, robot | 2B007 |
| Energetic ionic materials | Annex to Cat 1 List of Explosives 48 |
| Energy storage capacitors | 3A001.e.2 |
| Engines, diesel n.e.s. | 9A990 |
| Engines (marine), n.e.s. | 8A992.g |
| Engines (submarine), n.e.s. | 8A992.g |
| Engines (air breathing reciprocating or rotary internal combustion type) | 9A012.b.4 |
| Enterohaemorrhagic E. coli (EHEC) | 1C351.c.17 |
| Environmental chambers | 1B018.b, 9B106, or 9B610.b |
| Environmental chambers, capable of simulating flight conditions | 9B106, 9B610.b |
| Epitaxial growth equipment | 3B001.a |
| Epitaxial growth stored program controlled equipment | 3B991.b.1.d |
| Epitaxial wafers, Cadmium telluride (CdTe) | 6C002.b |
| Epoxy resin matrix impregnated carbon fibers or filamentary materials | 1C010.e Note 1 |
| Equine morbillivirus (Hendra virus) | 1C351.a.19 |

| Description | ECCN Citation |
|---|-----------------------|
| Erbium oxide (erbia) (Er_2O_3) made/coated crucibles | 2A225.a.4 |
| Etching stored program controlled equipment..... | 3B991.b.1.h |
| Ethers, as lubricating fluid | 1C006.b.1 |
| 0-ethyl-2-diisopropylaminoethyl methylphosphonite (QL)..... | 1C350.a.1 |
| Ethyl centralites | 1C018.a |
| Ethyl phenyl urethane | 1C018.e |
| Ethyl phosphinyl dichloride..... | 1C350.b.12 |
| Ethyl phosphinyl difluoride | 1C350.b.13 |
| Ethyl phosphorous dichloride..... | 1C350.b.12 |
| Ethyl phosphorous difluoride | 1C350.b.13 |
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| Ethyl phosphonyl difluoride | 1C350.a.2 |
| Ethyl-NN-diphenylurea (ethyl unsymmetrical diphenylurea) | 1C018.d |
| Ethyldiethanolamine (139-87-7)..... | 1C350.c.12 |
| Evaporators for concentrated lithium hydroxide solution | 1B233.b.4 |
| Exchange columns, liquid-liquid for lithium amalgams..... | 1B233.b.1 |
| Exchanges, telecommunication..... | 5A991.c |
| Excimer lasers | 6A005.d.4 |
| Execution of human beings, equipment for | 0A981 |
| Expert systems - integration systems technology | 2E003.e |
| Exploding foil initiators (EFI) | 1A007 |
| Exploding bridge (EB) detonators | 1A007 |
| Exploding bridge wire (EBW) detonators | 1A007 |
| Explosive, high | 1C239 |
| Explosive/munitions environment handling robots | 2B007.b |
| Explosive detection | 1A004.d |
| Explosive detonator firing sets..... | 1A007.a |
| Explosives or detonator detection equipment, software, or technology | 2A983, 2D983 or 2E983 |
| Explosive detonators, electric | 1A007.b or 3A232 |
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| Filters for hydraulic/oil/fuel systems in military aircraft | 9A610.y.8 |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Hydrofoil vessel technology | 8E002.c.3 |
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| III/V and II/VI semiconductor materials purifying or processing equipment | 3B991.b.1.b |
| III/V compound substrates, gallium or indium | 3C001.c |
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| Image intensifier tubes, direct view | 6A002.c.1 or c.3 |
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| Improvised explosive devices (specially designed or modified disposal equipment , components, and accessories) | 1A006 |
| Improvised Explosive Devices (IED) activation devices | 5A001.h |

| Description | ECCN Citation |
|---|-----------------------|
| IMU platform balance fixture | 7B003 or 7B101 |
| IMU platform tester | 7B003 or 7B101 |
| IMU stable element handling fixture | 7B003 or 7B101 |
| Incinerators designed to destroy the chemicals controlled by 1C350..... | 2B350.j |
| Independent (air) power systems underwater | 8A002.j |
| Indicator dials..... | 3A611.y.26 |
| Indicator heads designed/modified for use with balancing machines in 2B119.a..... | 2B119.b |
| Indium organo-metallic compounds | 3C003 |
| Indium III/V compounds substrates..... | 3C001.c |
| Induction coil magnetometers | 6A006.c |
| Induction furnace, controlled environment inert gas | 2B226 |
| Induction furnace, vacuum..... | 2B226 |
| Inductively coupled plasma mass spectrometers (ICP/MS) | 3A233.a |
| Industrial process control hardware/systems designed for power industries..... | 1B999.c |
| Industrial process control hardware/systems designed for power industries controlled by 1B999, software for..... | 1D999.a |
| Inert gas environment induction furnaces..... | 2B226 |
| Inertial Measurement Equipment..... | 7A003.c |
| Inertial measurement equipment..... | 7A003 |
| Inertial measurement unit tester (IMU module) | 7A003, 7B003 or 7B101 |
| Inertial navigation, systems/equipment/components | 7A103.a |
| Inertial navigation, systems/equipment/components | 7A003 |
| Inertial navigation systems not controlled by 7A003 or 7A103 | 7A994 |
| Inertial navigation system software, source code | 7D002 |
| Inertial reference Systems (IRS)..... | 7A003.c |
| Inertial sensors, optical fiber..... | 6A002.d.3.a |
| Inflatable boats and components..... | 8A992.f |
| Inflation cartridges | 8A992.i |
| Influenza virus (Reconstructed 1918 influenza virus) | 1C351.a.41 |
| Information security equipment software | 5D992 |
| Information security technology support software | 5D002.b |
| Information security equipment and components, n.e.s | 5A992 |
| Information security software | 5D002 |
| Information security systems/equipment/devices/components..... | 5A002 |
| Information security technology | 5E992 |
| Information security - test, inspection, and production equipment | 5B002 |
| Infrared detectors, industrial space qualified | 6A002.a.1 |
| Infrared sensors, industrial | 6A002.c |
| Infrared viewers (police model)..... | 9A980 |
| Inhibited red fuming nitric acid (IRFNA)..... | 1C111.a.3.e |
| Initiation systems, single or multipoint (electric) | 3A232.b |
| Injector (free electron laser photo) manufacturing or inspection equipment..... | 6B995.a.2 |

| Description | ECCN Citation |
|--|------------------|
| Inorganic overlay coating application technology | 2E003.f |
| Inorganic chemicals listed in Supp. No. 1 to part 754 produced or derived from the Naval Petroleum Reserves | 1C980 |
| Inorganic fibers & filamentary materials | 1C010.c |
| Inspection equipment (linear-angular for hemisHELLS) | 2B006.c |
| Inspection equipment for composite materials | 1B001.f |
| Inspection machines (dimensional), devices or systems, other than those in 2B006 | 2B206 |
| Instruction generators for machine tools - technology | 2E003.d |
| Instrumentation for gas turbine development | 9B002, 9B619 |
| Instrumentation for wind tunnels | 9B005 |
| Instrumentation systems, inertial navigation | 7A003 |
| Instrumentation cameras | 6A003.a |
| Integrated circuit assembly equipment | 3B991.b.3 |
| Integrated circuit, Direct Digital Synthesizer (DDS)..... | 3A001.a.13 |
| Integrated circuit test equipment, microwave | 3B002.c |
| Integrated circuit test equipment, for (truth table) testing | 3B002.b |
| Integrated circuit, masks | 3B001.g |
| Integrated circuits, compound semiconductor | 3A001.a.11 |
| Integrated circuits, custom | 3A001.a.10 |
| Integrated circuits, general purpose | 3A001.a |
| Integrated circuits, microwave | 3A001.b.2 |
| Integrated circuits, radiation hardened..... | 3A001.a.1 |
| Integrated circuits and assemblies manufacturing equipment and systems | 3B991.b |
| Integrated circuit and assembly testing equipment..... | 3B992.b.4.b |
| Integrated circuit computer-aided-design (CAD) software | 3D003 |
| Integrated circuits and assemblies inspection or testing equipment and systems..... | 3B992.b |
| Integrated flight instrument systems/components | 7A103.b |
| Integrated Navigation Systems, designed or modified for use in missiles | 7A103.c |
| Integrated Services Digital Network technology | 5E991 |
| Integrated system source code, avionic/mission systems | 7D003.c |
| Integration software for expert systems | 2E003.e |
| Integration technology for flight management systems..... | 7E104 |
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| Intercepting devices, communications..... | 5A980 |
| Interconnect equipment (Computer) | 4A003.g |
| Interconnection equipment..... | 3B991.b.1.1 |
| Interferometers, velocity (VISARs)..... | 6A225 |
| Interlacing machines | 1B001.c |
| Intermediate amplifier equipment..... | 5A991.b Note a.3 |
| International Space Station parts components accessories attachesMENTS | 9A004.w-y |
| Interrupters, ground fault circuit | 3A611.y.18 |
| Interstages for missiles..... | 9A117 |

| Description | ECCN Citation |
|---|---------------|
| Intrinsic magnetic gradiometers..... | 6A006.c.3 |
| Inverse synthetic aperture radar (ISAR) | 6A008.d |
| Inverters (Frequency changers or converters)..... | 3A225 |
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| Ion beam equipment for projection image transfer | 3B991.b.2.g |
| Ion beam sensitive resist materials | 3C002.b |
| Ion beam system, manufacturing, repairing, physical layout analysis and testing of masks or semiconductor devices | 3B992.b.6 |
| Ion implantation equipment | 3B001.b |
| Ion implantation equipment | 3B991.b.1.g |
| Ion implantation production equipment..... | 2B005.b |
| Ion lasers | 6A005.a |
| Ion or laser beam lithography mask or reticle fabrication equipment | 3B991.b.2.d.2 |
| Ion plating production equipment..... | 2B005.g |
| Ion-enhanced diffusion equipment | 3B991.b.1.g |
| ISDN development/production technology | 5E991 |
| Isolated live cultures | see Cultures |
| Isolators capable of use with biological agents..... | 2B352.f.2 |
| Isostatic presses, hot | 2B104 |
| Isostatic presses, hot | 2B204 |
| Isostatic presses, hot..... | 2B004 |
| Isostatic presses, n.e.s. | 2B999.a |
| Isotope separators, electromagnetic | 1B226 |
| Jamming equipment..... | 5A001.f.3 |
| Japanese encephalitis virus | 1C351.a.20 |
| Jet engine lubricating oil..... | 1C980 |
| Jet vane, thrust vector control sub-systems..... | 9A106.c |
| Jet engines/components, pulse | 9A111 |
| Jigs and fixtures for use in the manufacture of firearms, ordnance, and other stores and appliances for land, sea, or aerial warfare | 2B018.n |
| Joule-Thomson self-regulating minicoolers | 6A002.d.2.b.6 |
| Joy sticks | 3A611.y.4 |
| Jumpers, electrical..... | 3A611.y.24 |
| Junin virus..... | 1C351.a.21 |
| Kerr or Pocket cells, electro-optical shuttering..... | 6A203.b.3.c |
| Kick motors..... | 9A004 |
| Knobs | 3A611.y.34 |
| Krytron tubes, gas | 3A228.a |
| Kyasanur Forest disease virus..... | 1C351.a.22 |
| Laboratories (mobile), crime science..... | 9A980 |
| Laguna Negra virus..... | 1C351.a.23 |
| Laminate or composite development software | 1D002 |

| Description | ECCN Citation |
|---|------------------|
| Laminates & composite structures, organic metal or carbon..... | 1A002 |
| Laminates, rockets/propulsion systems/space vehicles | 9A110 |
| Land inertial navigation equipment | 7A003 |
| Land-based gravity meters production equipment..... | 6B007 |
| Laser acoustic detection equipment..... | 6A005.a |
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| Laser based measuring instruments | 2B006.b.1.c |
| Laser beam cutting machines (CNC)..... | 2B001.e.1.c |
| Laser beam equipment for mask making/semiconductor devices | 3B001.f.2 |
| Laser beam lithography mask or reticle fabrication equipment..... | 3B991.b.2.d.2 |
| Laser beam systems, for probing semiconductor devices..... | 3B992.b.5 |
| Laser communication technique technology | 5E001.b.2 |
| Laser diagnostic equipment | 6A005.f.2 |
| Laser diodes | 6A005.d.1 |
| Laser diodes designed for telecommunication..... | 5A991.b Note b.4 |
| Laser, fiber (components) | 6A005.e.3 |
| Laser gyro mirror characterization equipment..... | 7B102 |
| Laser microphone..... | 6A005.g |
| Laser pointing devices for use on firearms | 0A987 |
| Laser radar altimeters..... | 7A106 |
| Laser radar or Light Detection & Ranging (LIDAR) equipment | 6A008.j |
| Laser radar systems..... | 6A108 |
| Laser ring gyro test equipment | 7B002 |
| Laser, technology | 6E003.e |
| Laser welding machines..... | 2B999.c |
| Lasers | 6A005 |
| Lasers | 6A205 |
| Lasers | 6A995 |
| Lasers for direct write on wafers | 3B991.b.2.h |
| Lassa virus | 1C351.a.24 |
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| Latches for ground vehicles | 0A606.y.11 |
| Launch support equipment..... | 9A115, 9A610.f |
| Launch vehicle components/structures | 9A010, 9A610.x |
| Lavatories for military aircraft..... | 9A610.y.11 |
| Lavatories for submersible vessels | 8A620.y.4 |
| Lavatories for surface vessels of war..... | 8A609.y.4 |
| LAX-112 (3,6-diamino-1,2,4,5-tetrazine-1,4-dioxide)..... Annex to Cat 1 List of Explosives 47.b | |
| Leg irons | 0A982 |
| Lenses for radiation hardened TV cameras | 6A203.c |
| Lidar equipment (Laser radar) | 6A008.j |
| Life jackets..... | 8A992.i |

| Description | ECCN Citation |
|---|--------------------|
| Life rafts for military aircraft | 9A610.y.12 |
| Light gas guns(Multistage) systems | 2B232 |
| Light systems, fuses, and components, for ground vehicles | 0A606.y.12 |
| Light systems, Stroboscopic | 8A992.c |
| Light systems, underwater | 8A002.g |
| Light systems, underwater | 8A002.d.2 |
| Lights, underwater | 8A992.j |
| Lights, search | 0A617.y.1 and .y.2 |
| Lightweight composite or foam mirror structures | 6A004.a.3 |
| Lightweight monolithic mirrors | 6A004.a.2 |
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| Liquid or water jet cutting machines (CNC)..... | 2B001.e.1.a |
| Liquid lasers..... | 6A005.c |
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| Liquid rocket propulsion systems & components..... | 9A006 |
| Liquid rocket propulsion systems | 9A005 |
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| Lithium metal, alloys, compounds, mixtures, products or devices | 1C233 |
| Lithium isotope separation facilities, plant and equipment | 1B233 |
| Lithium amalgam electrolysis cells | 1B233.b.3 |
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| Lithography equipment, imprint | 3B001.f.2 |
| Lithography equipment, mask making for semiconductor wafer-processing | 3B001.f |
| Lithography mask or reticle fabrication equipment | 3B991.b.2.d.2 |
| Lithography software | 3D003 |
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| Logic arrays, field programmable (FPLA) | 3A001.a.8 |
| Logic processors and assemblies | 4A003 |
| Louping ill virus..... | 1C351.a.25 |
| Low Light Level (LLL) camera software | 6D003 |

| Description | ECCN Citation |
|---|---------------|
| Lubricating materials | 1C006.b |
| Lubricating oil..... | 1C980 |
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| Lumpy skin disease virus | 1C351.a.27 |
| LVDT (Linear voltage displacement transformer) based instruments | 2B006.b.1.b.1 |
| Lymphocytic choriomeningitis virus | 1C351.a.28 |
| Lyssavirus (including rabies virus and all other members of the Lyssavirus genus) | 1C351.a.40 |
| Machine tools, E-beam | 2B001.e.1.b |
| Machine tools, laser | 2B001.e.1.c |
| Machine tools, numerically controlled | 2B001 |
| Machine tools, numerically controlled | 2B201 |
| Machine tools, numerically controlled and using a Magnetorheological finishing (MRF) process..... | 2B002 |
| Machine tools, numerically controlled, optical finishing | 2B002 |
| Machine tools, water/other liquid jet | 2B001.e.1.a |
| Machine tool assemblies, units or inserts | 2B998 |
| Machine tool components and assemblies for 2B006 & 2B007 equipment..... | 2B008 |
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| Machine tools for generating optical quality surfaces | 2B992 |
| Machine tools for grinding (CNC)..... | 2B001.c |
| Machine tools for grinding (CNC)..... | 2B201.b |
| Machines for milling (CNC)..... | 2B001.b |
| Machines for milling (CNC)..... | 2B201.a |
| Machine tools for turning, grinding, and milling | 2B991.d.1 |
| Machines for turning (CNC)..... | 2B001.a |
| Machine tool instruction generators - development technology..... | 2E003.d |
| Machine tool rotary position feedback units..... | 2B008.b |
| Machine tool spindles | 2B008.c |
| Machining centers (CNC) | 2B201 |
| Machining centers (CNC) | 2B001 |
| Machupo virus | 1C351.a.29 |
| Magnaporthe oryzae (Pyricularia oryzae)..... | 1C354.b.6 |
| Magnesium (high purity) | 1C228 |
| Magnesium alloy, powder or particulate form | 1C002.b.1.e |
| Magnesium alloys | 1C002.a.2.e |
| Magnesium, metal and alloys of | 1C011.a |
| Magnesium oxide (MgO) made or coated crucibles..... | 2A225.a.6 |
| Magnesium metal particulate | 1C111.a.2.a.4 |
| Magnetic alloy strips..... | 1C003.c |
| Magnetic anomaly detection software | 6D003.f.2 |
| Magnetic bearings (suspension)..... | 2A001.c |

| Description | ECCN Citation |
|---|----------------|
| Magnetic compensation systems for magnetic and underwater electric field sensors | 6A006.d |
| Magnetic compensation systems software..... | 6D003.f.1 |
| Magnetic confinement plasma dry etching equipment | 3B001.c.1.a |
| Magnetic disk storage | 3A002.a.6 |
| Magnetic and Electric Field Sensors “software” | 6D003.f |
| Magnetic gradiometers..... | 6A006.c |
| Magnetic gradiometers, intrinsic | 6A006.c.2 |
| Magnetic hard disk drive development or production technology | 4E993.c |
| Magnetic metals | 1C003 |
| Magnetically enhanced, sputtering equipment | 3B991.b.1.f |
| Magnetometers..... | 6A006 |
| Magnetometers not controlled by 6A006 | 6A996.a |
| Magnetometer systems..... | 6A006 |
| Magnetostrictive alloys..... | 1C003.b |
| Mandrels for rotor assembly, bellows forming..... | 2B228.a |
| Mandrels, bellows-forming | 2B228.c |
| Mandrels (precision) for filament winding machines | 1B201 |
| Manganin gauges, pressure..... | 6A226.a |
| Manifolds (air, fuel, oil) for gas turbine engines | 9A619.y.8 |
| Manipulators, remote | 2B225 |
| Manipulators, for submersibles | 8A002.i |
| Manned, tethered submersible vehicles | 8A001.a |
| Manned, untethered submersible vehicles | 8A001.b |
| Manufactured gas and synthetic natural gas produced or derived from Naval Petroleum Reserves | 1C984 |
| Map cases for military aircraft..... | 9A610.y.28 |
| Maraging steel..... | 1C116 |
| Maraging steel..... | 1C216 |
| Marburgvirus (includes all members of Marburgvirus genus) | 1C351.a.30 |
| Marine acoustic systems | 6A001.a |
| Marine boiler..... | 8A992.1 |
| Marine engines and parts (both inboard and outboard, n.e.s.) | 8A992.g |
| Marine gas turbine engines | 9A002 |
| Marine, terrestrial acoustic equipment..... | 6A991 |
| Marx generators | 3A999.c |
| Mask, gas or full face | 1A004 or 1A995 |
| Mask or reticle altering holders or equipment | 3B991.b.2.d.3 |
| Mask or reticle fabrication equipment | 3B991.b.2.d |
| Mask or reticles or pellicles, stored program controlled inspection equipment | 3B991.b.2.e |
| Mask software | 3D003 |

| Description | ECCN Citation |
|--|-------------------|
| Masks | 8A992.i |
| Masks, integrated circuits of 3A001 | 3B001.g |
| Masks, mask substrates, mask-making equipment | 3B991.b.2 |
| Mass spectrometers & ion sources (UF6 enrichment plant) | 3A233 |
| Mass spectrometers, n.e.s..... | 3A999.b |
| Materials for reduced electromagnetic reflectivity | 1C101 |
| Materials "specially designed" for ground vehicles and related commodities controlled by 0A606 and not elsewhere specified on USML | 0C606 |
| Materials "specially designed" for surface vessels of war and related commodities controlled by 8A609..... | 8C609 |
| Miscellaneous materials "specially designed" for military use | 0C617 |
| Matrix, organic..... | 1A002.b |
| MCT (HgCdTe) crystals & epitaxial wafers..... | 6C002.b |
| Measurement equipment, radiation..... | 1A999.a |
| Measurement equipment, underwater velocity | 6A001.b |
| Measuring instruments or systems, dimensional | 2B006 |
| Measuring and analysis equipment..... | 3B992.b.2 |
| Mechanical cameras, framing | 6A003.a.1, 2 or 3 |
| Mechanical caps..... | 3A611.y.29 |
| Mechanical plugs | 3A611.y.30 |
| Media access units | 5A991.b Note a.12 |
| Medical facilities for submersible vessels | 8A620.y.6 |
| Medical facilities for surface vessels of war..... | 8A609.y.6 |
| Melting furnaces | 2B227.b |
| Mercury amalgam pumps | 1B233.b.2 |
| Mercury cadmium telluride crystals & epitaxial wafers..... | 6C002.b |
| Metal alloy powders or particulate form..... | 1C002.b |
| Metal alloy particulate | 1C111.a.2.a.4 |
| Metal alloys..... | 1C002.a |
| Metal alloys, aluminum or titanium..... | 1C202 |
| Metal alloys, beryllium | 1C230 |
| Metal alloys, boron | 1C011.b |
| Metal alloys, hafnium | 1C231 |
| Metal alloys, lithium | 1C233 |
| Metal alloys, powder and material production systems and components..... | 1B002 |
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| Metal alloys, tungsten or molybdenum..... | 1C117 |
| Metal alloys, zirconium | 1C234 |
| Metal coated fiber preforms | 9A110 |
| Metal coated fiber preforms for fiber prepregs in 9C110 | 9C110 |
| Metal or carbon matrix..... | 1A002.b |

| Description | ECCN Citation |
|--|---------------|
| Metal embrittlement agents..... | 0A617 |
| Metal-organic compounds, aluminum/gallium/indium | 3C003 |
| Metal particulate | 1C011 |
| Metal powder production equipment..... | 1B102 |
| Metal vapor lasers | 6A005.b |
| Metal working process tools, die & fixture technology..... | 2E003.b.1 |
| Metal working manufacturing processes technology | 2E003.b |
| Metallo-organic or polymeric materials..... | 1C007.e |
| Metallurgical melting & casting furnaces | 2B227 |
| Metals or carbon coated fibers | 1C010.e |
| Metals with high initial relative (magnetic) permeability..... | 1C003.a |
| Methyl centralites..... | 1C018.a |
| Methyldiethanolamine (105-59-9) | 1C355.b.2.b |
| Methyl phosphinyl dichloride | 1C350.b.1 |
| Methyl benzilate..... | 1C350.d.9 |
| Microbiological disposal technology | 1E351 |
| Microchannel plates, image intensifier tubes..... | 6A002.a.2 |
| Microcomputer microcircuits..... | 3A001.a.3 |
| Microcontroller microcircuits | 3A001.a.3 |
| Microcyclus ulei (syn. Dothidella ulei) | 1C354b.3 |
| Microcystins (Cynginosin)..... | 1C351d.9 |
| Microelectronic circuits (e.g., integrated circuits and micro-circuits) rated, certified, or otherwise specified or described as meeting or exceeding all the characteristics in 9A515.d and that are "specially designed" for defense articles, "600 series" items, or items controlled by 9A515 | 9A515.d |
| Microelectronic circuits (e.g., integrated circuits and micro-circuits) that are rated, certified, or otherwise specified or described as meeting or exceeding all the characteristics in 9A515.e and that are "specially designed" for defense articles controlled by USML Category XV or items controlled by 9A515..... | 9A515.e |
| Microfluorination ion sources | 3A233.f |
| Micromachined Angular Rate Sensors | 7A994 |
| Microorganisms, genetically modified | 1C353 |
| Microphones | 3A611.y.6 |
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| Microprocessor microcircuits above 530 MTOPS development/production technology..... | 3E002.g |
| Microwave amplifiers, solid state | 3A001.b.4 |
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| Microwave integrated circuit test equipment..... | 3B002.c |
| Microwave integrated circuits..... | 3A001.b.2 |
| Microwave modules..... | 3A001.b.2 |

| Description | ECCN Citation |
|---|--------------------------|
| Microwave or millimeter wave components | 3A001.b |
| Microwave or millimeter wave components software..... | 3D001 |
| Microwave or millimeter wave components technology..... | 3E001 |
| Microwave "monolithic integrated circuits" (MMIC) power amplifiers..... | 3A611.c |
| Microwave Monolithic Integrated Circuit (MMIC) power amplifier technology | 5E001.d or .e, 3E611.b.3 |
| Microwave power modules (MPM)..... | 3A001.b.9 |
| Microwave transistors (discrete)..... | 3A001.b.3 |
| Microwave test receivers | 3A002.f |
| Microwave wave components..... | 3A001.b |
| MIG welders | 2B999.d |
| Military commodities..... | 0A919 |
| Military components | 3A611 |
| Military construction equipment..... | 0A617.y |
| Military electronics (equipment, end items, systems) | 3A611 |
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| Military ferries, bridges and pontoons | 0A617 |
| Military harbor entrance detection devices (magnetic, pressure, and acoustic) | 8A620 |
| Military helmet..... | 0A018 |
| Military training equipment | 0A614 |
| Military vehicles | 0A606 |
| Military vehicle fording kits | 0A606 |
| Military vehicle self-launching bridge components | 0A606 |
| Millimeter wave components..... | 3A001.b |
| Milling machines, (CNC) with two or more coordinated axes..... | 2B001.b |
| Milling machines, (CNC) with two or more coordinated axes | 2B201.a |
| Milling machines (CNC)..... | 2B991.d.1 |
| Mills, fluid energy..... | 1B119 |
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| Mirror assemblies/segments, space assembly | 6A004.c.3 |
| Mirror characterization equipment, reflectometers..... | 7B102.b |
| Mirror structures, lightweight foam or composite type | 6A004.a.3 |
| Mirrors, actively cooled or heat pipe cooled | 6A005.e.1 |
| Mirrors, beam steering | 6A004.a.4 |
| Mirrors, cockpit for military aircraft..... | 9A610.y.15 |
| Mirrors, optical | 6A005.e.2 |
| Mirrors, optical | 6A004.a |
| Missile engine combustion regulation devices | 9A118 |
| Missile (usable) guidance sets | 7A117 |
| Missile telemetry..... | 5A101 |
| Missile modeling, simulation & integration software..... | 9D103 |

| Description | ECCN Citation |
|---|------------------|
| Mixed Oxides of Nitrogen (MON) | 1C111.a.3.d |
| Mixers, batch..... | 1B117 |
| Mixers, continuous..... | 1B118 |
| Mixers, frequency extenders | 3A001.b.7 |
| Mobile communications equipment, assemblies and components | 5A991.g |
| Modeccin toxin | 1C351.d.10 |
| Modeling/simulation of guidance sets, software | 7D103 |
| Modems..... | 5A991.b.2 |
| Modular time interval meter | 3A999.e2 |
| Modules, microwave | 3A001.b.2 |
| Modules/assemblies, fast switching function | 3A228.c |
| Molecular beam epitaxial growth equipment using gas sources | 3B001.a.3 |
| Molecular beam epitaxial growth equipment | 3B991.b.1.e |
| Molecular beam mass spectrometers | 3A233.e |
| Molybdenum alloy fibers..... | 1C010.c Note 2 |
| Molybdenum & tungsten metals & alloys | 1C117 |
| Monel equipment including valves, piping, tanks and vessels | 2B999.f |
| Monel plate | 1C999.c |
| Monitoring equipment, radiation | 1A999.a |
| Monitoring systems, toxic gas | 2B351 |
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| Monolithic integrated circuits | 3A001.a Note 2 |
| Monolithic integrated circuit repair or trimming laser equipment..... | 3B991.b.1.m |
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| Multi-data-stream processing equipment, development or production technology for | 4E993.b |
| Multi-element detector arrays | 6A002.a.3 |
| Multi-layer hetero-epitaxial material substrates & wafers..... | 3C001 |
| Multi-layer masks (with phase shift layer), for integrated circuits | 3B001.h |
| Multipchip integrated circuits | 3A001.a Note 2 |
| Multipchip modules | 3A611.h, y.16 |
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| Multiple-seal pumps..... | 2B350.i |
| Multiplex equipment..... | 5A991.b Note a.7 |
| Multipoint initiation systems | 3A232.b |

| Description | ECCN Citation |
|--|---------------------------------|
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Pumps, vacuum | 2B350.i |
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| Pyrolysis equipment, for rocket nozzles and reentry vehicle nose tips (other than those controlled by 2B004, 2B005.a, 2B104, or 2B105) | 2B117 |
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| Description | ECCN Citation |
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| Range instrumentation radars | 6A108.b.2 |
| Rankine cycle engine, air independent | 8A002.j.1 |
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| Rate tables, positioning tables, and motion simulators..... | 2B120 |
| Rathayibacter toxicus..... | 1C354.a.6 |
| Reactor vessels, chemical | 2B350.a |
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| Real time processing proof and validation software..... | 4D993 |
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| Receivers, radio..... | 5A001.b.2, 3 or 4 |
| Reciprocating diesel engine & component technology | 9E003.e.1 |
| Reconstructed 1918 influenza virus (includes reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments) | 1C351.a.41 |
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| Remotely operated vehicles | 1A006.a |
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| Resin (thermoset) impregnated continuous materials..... | 1C210.c |
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| Robot controllers..... | 2B007 |
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| Security equipment, information, software..... | 5D002 |
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| Security scanning equipment | 2A984, 2D984 or 2E984 |
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| Semiconductor components, extended temperature range..... | 3A001.a.2 |
| Semiconductor component design software, computer-aided-design | 3D003 |
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| Description | ECCN Citation |
|--|--------------------|
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| and shotgun shells, technology for the development or production of | 0E984 |
| Shotguns, barrel length 18 inches or over..... | 0A984 |
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| Signal processing equipment | 4A994.f |
| Signal processing equipment, general purpose digital..... | 4A003 |
| Signal processing equipment, hydrophone arrays | 6A001.a.2.c |
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| Signature suppression devices, treatments & fittings | 1A101 |
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| Single crystal casting equipment | 9B001.a, 9B619 |
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| Skin friction transducers, wall | 9B008 |
| Slapper detonators (Electric)..... | 1A007 or 3A232.a.3 |
| Slurry propellant control systems | 9A106.d |
| Smoke bombs | 1A984 |
| Smoke detector for military aircraft..... | 9A610.y.27 |
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| Sodium bifluoride | 1C350.d.16 |
| Sodium cyanide..... | 1C350.d.17 |
| Sodium fluoride | 1C350.d.18 |
| Sodium (Na) metal vapor lasers..... | 6A005.b |
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| <i>Software, see product group D for controls in each category</i> | |
| Software, adaptive control | 2D002.b.2 |

| Description | ECCN Citation |
|--|--------------------|
| Software, adaptive control | 2D992.a |
| Software, dedicated, for toxic gas monitoring systems and their dedicated detecting components controlled by 2B351 | 2D351 |
| Software, electronic devices | 2D002 |
| Software, for coordinating function of multiple subsystems for use in missiles | 9D105 |
| Software, for portable electric generator development or production | 2D994 |
| Software for Nuclear materials, facilities and equipment..... | 0D001 |
| Software, numerical control..... | 2D002 and 2D003 |
| Software, real time processing in machine tools | 2D002.b |
| Software, real time processing equipment operating systems | 4D993.c |
| Software, recovery of source code..... | 5D001.c.2 |
| “Software” specially designed or modified for the “development”, “production” or “use” of equipment controlled by 2A983 | 2D983 |
| “Software” “specially designed” for ground vehicles and related commodities controlled by 0A606, 0B606, or 0C606 | 0D606 |
| “Software” “specially designed” for commodities controlled by 0A617, “equipment” controlled by 0B617, or materials controlled by 0C617 | 0D617 |
| “Software” specially designed for the “development” of the equipment controlled by 3A003..... | 3D004 |
| “Software” “specially designed” for the “development,” “production,” operation, failure analysis or anomaly resolution of commodities controlled by 9A515.d | 9D515.d |
| “Software” “specially designed” for the “development,” “production,” operation, failure analysis or anomaly resolution of commodities controlled by 9A515.e | 9E515.e |
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| Solenoids..... | 3A611.y.10 |
| Solenoids, superconductive..... | 3A001.e.3 |
| Solenoids, superconductive | 3A201.b |
| Solid propellant rocket engines..... | 9A107 |
| Solid rocket propulsion systems | 9A007 |
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| Solid state joining equipment, tools/dies/fixtures | 9B004 |
| Solid state imaging devices..... | 6A203.b.3 |
| Solid-state imaging devices | 6A002 |
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| Solid state microwave amplifiers..... | 3A001.b.4 |
| Solid-state power semiconductor switches, diodes, or 'modules' | 3A001.h |
| Sonar, active individual | 6A001.a.1.e |

| Description | ECCN Citation |
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| Sonar processing equipment | 6A001.a.2.b |
| Sonar log equipment | 6A001.b |
| Sonar, Side Scan Sonar (SSS) designed for seabed imaging | 6A001.a.1.a.3 |
| Sonar, Synthetic Aperture Sonar (SAS) designed for seabed imaging..... | 6A001.a.1.a.3 |
| Sonar, underwater navigation system | 7A008 |
| Sonar signal processing equipment..... | 6A001.a.1.d Note a |
| SONET (Synchronous Optical Network) technology..... | 5E001.b.4 |
| SONET (Synchronous Optical Network) technology..... | 5E991.a.2 |
| Sounding rocket use software | 9D101 |
| Sounding rockets..... | 9A104 |
| Source code automatic generation software | 4D993.b |
| Source code, development of avionic goods as specified | 7D004 |
| Source code recovery software | 5D001.c.2 |
| Spacecraft..... | 9A515 |
| Spacecraft buses..... | 9A515 |
| Spacecraft on-board systems..... | 9A515 |
| Spacecraft payloads | 9A515 |
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| Spacecraft components | 9A515 or 9A010 |
| Spacecraft inertial navigation equipment/components | 7A003 |
| Spark-gaps, triggered | 3A228.b |
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| Spin forming machines | 2B009 |
| Spin forming machines | 2B209 |
| Spin forming machines | 2B999I |
| Spin forming machines capable of flow-forming functions | 2B209 |
| Spin forming machines combining spin-forming and flow-forming function..... | 2B009 |
| Spindle assemblies | 2B998.a |
| Spindle assemblies, machine tools..... | 2B008.c |
| Spray booms or arrays of aerosol generating units, specially designed for fitting to aircraft, lighter than air vehicles,” or “UAVs”..... | 2B352.i.2 |
| Spray cooling thermal management systems | 3A003 |

| Description | ECCN Citation |
|---|------------------|
| Spray-drying equipment capable of drying toxins or pathogenic microorganisms | 2B352.f |
| Spraying or fogging systems, specially designed for fitting to aircraft, “lighter than air vehicles,” or “UAVs” | 2B352.i.1 |
| Spraying production equipment, plasma with controlled atmosphere..... | 2B005.d |
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| Spread spectrum radio equipment..... | 5A001.b.3 |
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| Sputtering equipment, magnetically enhanced | 3B991.b.1.f |
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| Staging mechanisms for missiles | 9A117 |
| Stainless steel plate | 1C999.b |
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| Steel, maraging | 1C116 |
| Steel, Titanium-stabilized duplex stainless (Ti-DSS) | 1C118 |
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| Stored program controlled (SPC) switching equipment, equipment for the development of equipment employing | 5B001.b |
| Stored program controlled (SPC) switching equipment, software for the development of equipment employing | 5D001.d |
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| Stored program controlled crystal pullers | 3B991.b.1.c.2 |
| Straight jackets | 0A982 |
| Strap down/gimbal inertial navigation systems or equipment | 7A003 |
| Streak cameras, mechanical type | 6A203.a.2 |

| Description | ECCN Citation |
|---|---------------------------|
| Streak cameras, mechanical or electronic | 6A003.a.3 |
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| Submarine diesel engines..... | 8A620.d |
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| Submersible systems | 8A992.e |
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| Submersible vessels, military..... | 8A620 |
| Submersible vessels, oceanographic and associated commodities | 8A620 |
| Submersible vehicles operation software (unmanned) | 8D999 |
| Submersible vehicles/vehicle systems, equipment, or components (non-military) | 8A002.a |
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| Description | ECCN Citation |
|--|------------------|
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Vessel noise reduction equipment | 8A002.o.3 |
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| Vessels, marine systems or equipment | 8A992 |
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| Description | ECCN Citation |
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| Description | ECCN Citation |
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| Welders, E-beam..... | 2B999.e |
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| Western red cedar, logs and timber..... | 1C988 |
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| Zinc germanium biphosphide | 6C004.b.4 |
| Zinc germanium diphosphide | 6C004.b.4 |
| Zinc germanium phosphide..... | 6C004.b.4 |
| Zinc selenide (ZnSe), substrate blanks | 6C004.a |
| Zinc sulphide (ZnS), substrate blanks..... | 6C004.a |
| Zirconium fluoride (ZrF_4) glass | 6C004.e |

| Description | ECCN Citation |
|--|---------------|
| Zirconium metal particulate..... | 1C111.a.2.a.1 |
| Zirconium metal, alloy, compounds, or manufacturers | 1C234 |
| Zirconium oxide (zirconia) (ZrO ₂) made/coated crucibles | 2A225.a.9 |
| Zoonotic pathogens and “toxins” | 1C351 |

Note: Prior to October 15, 2013, the CCL contained certain ECCNs that were only included as cross references to items subject to the export control regulations administered by the Nuclear Regulatory Commission. ECCNs formerly listed on the CCL that, as of October 15, 2013 were subject to the export licensing authority of the Nuclear Regulatory Commission at 10 CFR part 110 are: 0A001, 0B001, 0B002, 0B003, 0B004, 0B005, 0B006, 0C001, 0C002, 0C004, 0C005, 0C006, 0C201 and 1C012. See Section § 774.1(b) for additional information.